0010

February 6, 2003

TO: Internal File

FROM: Gregg A. Galecki, Reclamation Specialist III, Hydrology – Team Lead

RE: Refuse Pile, Canyon Fuel Company, Dugout Canyon Mine, C/007/039-SR02D-1, Internal File

SUMMARY:

The following review addresses the hydrology section of a proposed amendment to address the addition of a refuse pile to the Dugout Canyon Mine facilities. The amendment was considered a Significant Revision of the current permit since the addition of the Refuse Pile area would represent an increase of greater than 15 percent of the disturbed area currently permitted. The amendment document was submitted as a 'stand-alone' document, with the exception of the bond calculations that will be included in Appendix 5-6 of the M&RP upon approval. The submittal was originally received by the Division on April 22, 2002, and determined Administratively Complete on August 9, 2002. However, additional information was requested from the applicant prior to the commencement of the technical review, which was submitted on August 30, 2002. The amendment was returned with deficiencies to the Operator on October 10, 2002, and was resubmitted to the Division on January 08, 2003. Deficiencies outlined below must be adequately addressed prior to amendment approval.

TECHNICAL ANAYLSIS:

ENVIRONMENTAL RESOURCE INFORMATION

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Included in the current Refuse Pile amendment is a general surface geology map and borehole logs that adequately characterize the area surrounding the Refuse Pile storage area. RA Figure 6-1, Area Geology, has been modified to include a legend identifying the respective geologic units. This previously cited deficiency has now been adequately addressed.

Findings:

The information provided adequately addresses the minimum requirements of the Geologic Resource Information section of the regulations.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and Analysis

The sampling conducted and submitted for baseline information is adequate for initial characterization of the hydrologic system. No analysis of surface water or groundwater was conducted as part of baseline data; no flow was documented at the surface sites, and only depth was collected at the groundwater monitoring locations.

Baseline Information

A total of four years of quarterly data has been collected and submitted for surface-water monitoring sites SS-1 and SS-2, and groundwater wells DH-1, DH-2, and DH-3. This is considered adequate information for initial characterization of the hydrologic system.

An earlier deficiency involving discrepancies between the groundwater wells and RA Figure 7-1 have now been rectified. The elevations of the collars of the groundwater wells were inaccurate in the April 2002 submittal. The groundwater wells were resurveyed and now reflect accurate elevations. It can be noted that the depth-to-water information did not change in RA Attachment 7-1 Baseline Data, only the elevations. No modifications were made to RA Figure 7-1. The previously cited deficiency has now been adequately addressed.

Ground-water Information

Additional groundwater information was requested by the Division since the information from the Soldier Canyon Mine is located approximately six (6) miles north of the Refuse Pile Storage area and located in different surface geologic units. Plate 7-1, from the Soldier Canyon M&RP, has been referenced in the text and a copy of the plate is included in the RA amendment for reference information concerning the local aquifer. Section 724.100 – Groundwater Information of the Refuse Pile Amendment has also been modified to include a commitment to initiate monitoring of groundwater well DH-1 that is located on the Refuse Pile site. This adequately addresses an earlier deficiency stating that groundwater information from the Soldier Canyon area was inadequate for characterization.

Surface Water Information

Section 722.200 indicates Dugout Creek is located1/8 to ¼ mile from the Refuse Pile area. The scale on RA Plate 7-1 does clearly illustrate the overland distance a discharge would need to travel to enter Dugout Creek. However, Plate RA Plate 1-1 Dugout Canyon Mine Permit Area illustrates that a discharge from the Refuse Pile area would enter an unnamed ephemeral branch of Dugout Creek approximately three (3) miles upstream of the main branch of Dugout Creek (which is also ephemeral in nature at that point).

Baseline Cumulative Impact area Information

Section 728.100 of the Refuse Pile Amendment identifies the potential impacts of storing refuse and other materials in the proposed area on the quality and quantity of surface-water and groundwater.

Modeling

No hydraulic modeling was conducted nor considered necessary for the Refuse Pile storage area.

Alternative Water Source Information

Identification of Alternative Water Source Information is not necessary. A query of the Utah Division of Water Rights database indicates no water rights exist within a 10,000-foot

radius of the proposed Refuse Storage area.

Probable Hydrologic Consequences Determination

Section 728.300 of the Refuse Pile Amendment addresses mitigating measures that will be implemented to minimize potential impacts specifically from acid-or-toxic-forming materials, sediment yield, groundwater and surface water availability, potential hydrocarbon contamination, and road salting. Baseline information supporting the determination indicates the Refuse Pile storage area is located in the Mancos Shale which is not considered a to be a regional or local aquifer, is also considered to be relatively impermeable, and the refuse pile area is limited to only a few acres.

Findings:

The information provided adequately addresses the minimum requirements of the Hydrologic Resource Information section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Monitoring Sampling Location Maps

RA Figure 7-1 adequately identifies the location of water monitoring sites.

Permit Area Boundary Maps

RA Plate 1-1 replaces RA Figure1-1A and 1-1B from the April 2002 submittal. The modification includes a scale change (1-inch = 200' to 1-inch = 2000') which adequately locates the permit area relative to the entire mine plan on a regional scale. RA Figure 7-1 identifies the area on a detailed scale (1-inch = 200').

Surface and Subsurface Ownership Maps

A landownership map is located as Plate1-3 in the MRP.

Findings:

The information provided is adequately addresses the minimum requirements of the Environmental Resource Information section of the regulations.

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Ground-water monitoring

The proposed groundwater monitoring outlined in the Refuse Pile amendment, Section 731.200 – Water Monitoring, has been modified per the Division request. Since DH-1 is screened within alluvial sediments, the Operator has committed to conducting water quality analysis for eight (8) consecutive quarters beginning in first quarter 2003, after which water quality analysis will be conducted once annually. The parameters to be analyzed are outlined in Table 7-4 of the currently approved M&RP. This commitment adequately addresses an earlier cited deficiency.

Surface-water monitoring

The proposed surface-water monitoring outlined in section 731.200 of the Refuse Pile amendment adequately addresses the surface drainage in the area.

Acid and toxic-forming materials

The encountering of Acid- or toxic forming materials is not anticipated at the mine. The commitment to routine sampling of the refuse will likely identify any such materials. If any acid- or toxic materials are identified, they will be covered with a minimum of 4-feet of cover.

Water quality standards and effluent limitations

The sedimentation pond is designed as a total containment structure. However, the Applicant makes the commitment that all discharges of water will comply with all Utah and federal water quality laws and regulations (section 751).

Diversions

Diversion design was based on a 100-year, 6-hour precipitation event. The Division has been recommending diversions be designed to contain the runoff from a 10-year, 24-hour event; which in this case is essentially equivalent.

Section 742.300 provides a general discussion of the requirements and design of the diversions, and all diversion and culvert calculations area presented in RA Atttachement 7-4 and RA Tables 7-3 and 7-4. The need for the lining of channels was set at a peak velocity of 5 feet/second (fps). The 5 fps velocity criteria for lining channels was based on the alluvial silts and fine gravels anticipated in the area. The basis for 5 fps is referenced in Section 762.100 of the Refuse Pile amendment.

Sediment control measures

Forms of sediment control measures include silt fences, riprap, contemporaneous re-vegetation, vegetative sediment filters, a sediment pond, and other measures that reduce overland flow velocities, reduce runoff volumes or trap sediment. The applicant makes a commitment that these structures will be maintained to remain functional.

Siltation structures

The primary siltation structure within the permit area will be a sediment pond. Another siltation structure on the Refuse Pile area is labeled the 'Containment Area' in the northwest portion of the disturbed area. The Containment Area is comprised of the topsoil storage area that is totally surrounded by berms. Any failure of the 'containment area' would report to the sediment pond. Designs for the berms surrounding the topsoil storage area are included in RA Attachment 7-4 – Diversion and Culvert Design Calculations. Section 732.200 – Sedimentation Ponds of the Refuse Pile amendment, commits to installing a clean-out marker in the sediment pond. The information provided adequately addresses earlier cited deficiencies.

Sedimentation ponds

All calculations and design maps for the proposed sediment pond are included in the amendment and are P.E. certified. The pond is designed as a total containment structure to fully contain the runoff from a 100-year, 24-hour precipitation event (2.8 inches).

Findings:

The information provided adequately addresses the minimum requirements of the Operational Plan – Hydrologic Information section of the regulations.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Discharge structures

Section 762.100 discusses the reclamation of channels RWS-1 and RWS-2, which includes portions of the channels that will have riprap installed as part of final reclamation. RA Plate 7-3 has been modified to indicate which portions of the channels will have riprap installed, and a cross section diagram illustrating the proposed riprap design is located in RA Attachment 7-4 – Refuse Pile Drainage section. This information adequately addresses earlier cited deficiencies.

Findings:

The information provided adequately addresses the minimum requirements of the Reclamation Plan – Hydrologic Information section of the regulations.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

The Division has determined that the addition of the Dugout Refuse Pile amendment will have no to minimal impact on the hydrologic regime or cumulative hydrologic impact area (CHIA).

Any potential impact caused by surface runoff is mitigated through the sedimentation pond that is designed to contain all the runoff from the site from a 6-hour /100-year storm event. In the event the sedimentation pond does discharge, the receiving stream is an ephemeral branch of Dugout Creek that needs to travel in excess of three (3) miles to reach the main branch of Dugout Creek (which is also ephemeral in nature at that point).

No groundwater or surface-water rights exist in the area that would be potentially impacted. No 'economic or regional' aquifer exists in the vicinity of the Refuse Pile area, and any potential impacts to any localized groundwater are being monitored by a groundwater well (DH-1) located down-gradient of the Refuse Pile. Also, considering the marginal water quality

associated with the Mancos Shale bedrock in the area, degradation to the existing groundwater is unlikely.

No modification to the Division's - Book Cliff Area II CHIA document (containing Soldier Canyon Mine and Dugout Canyon Mine) is necessary. The Refuse Pile area is already included within the CIA area.

RECOMMENDATIONS:

The application can be approved in its current form.

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